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LOCATING OFF-THE-SHELF ITEMS

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Donna J. S. Peterson
Nicholas R. Schacht

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LOGISTICS MANAGEMENT INSTITUTE
6400 Goldsboro Road
Bethesda, Maryland 20817-5886

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Executive Summary

LOCATING OFF-THE-SHELF ITEMS

DoD can realize substantial benefits by using existing commercial or military parts and components rather than custom designing new items. Among the benefits are reduced cost and time for development and production. However, to realize those benefits, DoD must be able to identify suitable existing parts and components, which can be either commercially available products or military items already in the inventory. Until now that information has not been readily available.

Recent advances in computer technology have made possible the development of very large databases, and advances in software have made possible the indexing and rapid retrieval of information from them. One result is automated catalogs that use data from the Federal Supply Catalog (FSC) to describe some 14 million manufacturers' parts by their technical characteristics. The FSC-based catalog systems allow designers and buyers to identify suitable items already bought by the Government. Unfortunately, no automated counterparts are available for most commercial products that might prove to be substitutes for military-designed items, even though the FSC-based catalog systems prove that they are feasible.


Since DoD is the major potential user and beneficiary of automated catalogs, it is in its interest to promote their development. We recommend that the Deputy Assistant Secretary of Defense (Production Support) take the following actions:

- Publicize the availability of FSC-based catalog systems and the need for automated catalogs covering commercial items.
 - ▶ Distribute widely a pamphlet describing existing automated catalogs and identifying the need for additional ones featuring commercial products.
 - ▶ Participate in conferences of the potential user and developer communities to demonstrate the need and explore the market for such catalogs.
- Participate in funding the development of an automated catalog for commercial products by awarding a competitive contract in exchange for a period of royalty-free use.

By making buyers and designers aware of automated FSC-based catalogs, DoD can increase their use. By making software developers aware of the need for automated catalogs of commercial products, DoD can stimulate their development. Greater use of commercial products is anticipated and both DoD and the developers will be better off. Time and costs will be saved.

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CHAPTER 1

THE NEED FOR AUTOMATED PARTS CATALOGS

INTRODUCTION

Acceptable commercial "off-the-shelf" products often cost less, are more widely available, and can be acquired quicker than unique custom-designed items. Thus, DoD encourages their use whenever possible.

DoD Directive 5000.37, *Acquisition and Distribution of Commercial Products*, published in 1978 establishes the following policy for using commercial products: "DoD Components shall purchase commercial, off-the-shelf products when such products will adequately serve the Government's requirement, provided such products have an established market acceptability . . ." More recently, the Packard Commission recommended increased use of commercial products to save money.¹

In line with its policy, DoD has developed standardization and data management programs to remove barriers that impede increased use of commercial items in military systems. Past efforts have resulted in the cancellation of unnecessary standards and specifications, use of commercial specifications where possible, and better guidance on limiting the standards and specifications applied to an item in the design stage. While those efforts have made it easier to buy off-the-shelf items, DoD is still faced with the problem of identifying commercial products that would be acceptable substitutes for custom-designed items.

One means of identifying commercial substitutes is to use automated parts catalogs that have been developed by the private sector. Some of those systems cover items in the Federal Supply Catalog (FSC) and other, more commercially oriented systems consolidate catalog information from a group of manufacturers and cover an industry or a class of products. The number of products included in the catalogs varies widely and the level of detail differs, but automated catalogs partially satisfy DoD's desire to identify commercial products. More important, the more

¹A *Quest for Excellence*, Final Report to the President by the President's Blue Ribbon Commission on Defense Management, June 1986.

sophisticated systems demonstrate the potential for applying current database technology to develop automated parts catalogs.

Consider the benefits of an automated parts catalog system. The *standardization community* would have a tool to help promote DoD's increased use of commercial products. The *weapon system design community* would be able to identify available products that conform to the technical characteristics of a DoD part or component. New weapon systems could be designed with a minimum number of custom-designed parts and components. The *procurement community* could identify a more extensive supplier base, and the increased competition could lead to lower costs, shorter procurement times, and less dependence on foreign suppliers.

Many prime *defense contractors* assemble purchased and subcontracted parts and components instead of fabricating them and they must submit plans showing how they will meet the requirements for subcontract competition. An automated catalog would help them locate additional sources of supply and encourage increased competition. Large *subcontractors* will also be interested in additional sources of supply since they, too, must comply with competition regulations. Smaller subcontractors and vendors of purchased parts will benefit from having their catalog information in the automated system. It will give their products much more exposure at a lower cost than mailing lists. Small businesses will find such a system particularly beneficial.

CURRENT CATALOG SYSTEMS

Existing automated parts catalogs may be grouped into those that cover items in the FSC and those oriented toward commercial products. Those groupings are not mutually exclusive; DoD, for example, purchases many commercial products and they would be included in the FSC along with items designed specially for the military. Similarly, automated commercial products catalogs include some items that are sold both commercially and to the military.

Automated catalog systems covering FSC items provide user-friendly access to the 14 million parts in the Federal Government's cataloging system. One of the innovative features of those systems is the ability to search for a part based on a technical description. For example, a user can obtain a list of all generators of a specific size and weight that have a given kilowatt output. Technical descriptions can be quite detailed; some items are described by as many as 50 characteristics.

With that feature, the user can identify items that could be used in applications other than those for which they were originally acquired. FSC-based automated catalogs also provide links to Service-specific databases such as the Navy's Allowance Parts List and the Army Master Data File that provide information on equipment configuration and application. While the FSC-based catalogs are excellent for accessing and indexing parts and items the Government has already purchased, they do not identify commercial products that could be substituted for existing FSC items or that could be used in lieu of designing new items.

Automated catalog systems for commercial products are usually limited to one industry or a group of products, and they are often developed in response to a specific need, e.g., how to dispose of excess inventory quickly. Some of those systems provide general descriptions of the products included, but none have the level of detail of the FSC-based systems. A few automated catalogs cover both military and commercial items. For example, one covers microcircuits and semiconductors, listing the basic chip and all related variations, including military-qualified versions.

However, automated commercial products catalogs currently available do not approach the range of items purchased by DoD. To be useful, such catalog systems would provide access to information on the products of many industries. Automating the information allows users to sort, search, and array data in the way most useful to them. A single, comprehensive system is not necessary since a gateway system can be used to tie together many smaller databases. However, having as few systems as possible would eliminate redundancy, improve the consistency and comprehensiveness of information, and save the user time and effort.

SUMMARY

The purpose of this study is to acquaint potential users with automated parts catalog systems currently available. We describe several systems that cover the items contained in the FSC. Those catalog systems could help DoD find additional applications for items already in the inventory. However, there are no comparable automated catalogs covering commercially available products not now purchased by the DoD.

DoD should play a role to encourage increased use of the FSC-based systems and development of automated catalogs covering commercial products. We recommend that it stimulate their development in the following ways:

- Publicize the benefits of automated catalogs and the need for catalogs that cover commercial products
- Provide part of the funding for their development in exchange for a period of royalty-free use.

The FSC-based systems demonstrate that computer technology has advanced to a point where automated parts catalogs for commercially available parts are feasible. Such catalogs will promote increase use of off-the-shelf products and DoD will save time and money.

In the remainder of this report, Chapter 2 contains brief descriptions of the systems we identified and Chapter 3 presents our findings, conclusions, and recommendations. An appendix provides detailed descriptions of five automated catalogs.

CHAPTER 2

AUTOMATED PARTS CATALOGS NOW AVAILABLE

INTRODUCTION

Most manufacturers publish catalogs of their products to help potential purchasers select products that meet their needs, and many of those catalogs are quite extensive. For example, Designatronics, a producer of mechanical components, distributes an 800-page catalog and McGraw-Hill publishes the *Electronic Buyer's Guide* with about 1,000 pages.

An increasing number of manufacturers are automating their catalogs, and computer technology has reached a point at which catalogs from all manufacturers in a single industry, or for that matter, across many industries, can be combined. Such a system is possible because computer speed and storage capacity are continually increasing. Compact disk (CD) technology permits vast amounts of data to be used by personal computers. Software advances provide efficient storage, indexing, and retrieval of large databases.

Automated catalog systems offer several advantages: they require less space, offer better access to information, and cost less to update. A designer or procurement specialist can reasonably store only a limited number of paper catalogs, and while microfiche takes up less space, it is not easy to access. Cross-referencing in the index of a paper catalog is necessarily limited, whereas in an automated system it is virtually unlimited. Finally, updating an automated system is easier and less costly and thus more timely information is available.

In the remainder of this chapter, we discuss available automated catalog systems: first those that are based on the FSC and then those that cover commercial products. We also look briefly at future plans to automate commercial catalogs, industry's attitude toward such systems, and the problems that must be resolved in developing them.

FSC-BASED SYSTEMS

The Federal Catalog System provides uniform Government-wide identification and nomenclature for items – both commercial and custom-designed – purchased or stocked by DoD. While many of the initial efforts to enhance automated access to the FSC were joint industry-Government ventures, most major systems are now proprietary products.

A typical FSC-based system identifies items by National Stock Number (NSN), manufacturer's part number, item description, and contractor identification number. It also often provides some or all of the following information:

- Item technical characteristics
- Relevant standards and specifications for an item and general information on standards and specifications
- Item procurement history
- Next higher assembly applicability
- Manufacturer catalog references
- Vendor part availability.

Some FSC-based systems provide access to Service-specific databases or data from other Federal agencies that can be quite useful. For example, the procurement history is obtained from Service data files.

The main disadvantage of all automated FSC catalog systems is that their data embody the shortcomings of the FSC data. Technical data may be incomplete or even unavailable, and categorization of technical characteristics is inconsistent. For example, a tractor-trailer with a characteristic of "Engine Type" could be classified as "GASOLINE," "GASOLINE-POWERED," or "GAS," even though all three describe the same thing. Many items only reference the major applicable standard or specification, and thus, many standards and specifications references are not readily available. Again, the data problems are not endemic to the automated systems; they arise from deficiencies in the original Government data. However, the potential user needs to be aware of the shortcomings of those data.

The FSC-based systems currently available are: (1) *Haystack* from Ziff-Davis Communications; (2) *Technical Logistics Reference Network (TLRN)* from

Innovative Technology Incorporated; (3) *Inventory Locator Service (ILS)* from Inventory Locator Service, Inc.; and (4) *Parts-Master* from NSA Publishing. *Haystack* and *TLRN* are quite similar, and each is continually being refined and improved. Their respective capabilities appear to leapfrog each other as new versions of their products are released. Both of those systems are available on CDs. *ILS* has much of the same information as *Haystack* and *TLRN*, but its primary function is the location of available stock in vendor inventories. These three systems are described in detail in the appendix. *Parts-Master* and *ILOGS* (the CD version of *ILS*) are FSC-based CD products with more limited coverage and capabilities than *TLRN*, *Haystack*, and *ILS*.

A Government purchaser has several options to subscribe to the FSC-based catalog systems. All systems have Government subscription rates that are lower than commercial subscription rates. All the FSC-based systems are also available through *FEDLINK*, which is a network of Federal libraries that acquires information services at a discount. You do not have to be a Federal library or information center in order to subscribe through *FEDLINK*. *ILS* is available on the General Services Administration (GSA) schedule and *TLRN* will be available through the *Defense Gateway Information System (DGIS)*.

Automated FSC-based systems are sophisticated information systems that provide access to FSC data and links to various Service-specific databases and some commercial databases. They offer the means to identify items in the Federal inventory that could be used as substitutes in existing equipment or as parts in a new system under design. The major drawback to these FSC-based systems is that they cover only items already in the Government's inventory and provide little, if any, information on commercially available products not now being used. However, some of that missing information is provided by automated catalogs for commercial products.

AUTOMATED CATALOGS FOR COMMERCIAL PRODUCTS

Automated catalogs for commercial products are rarely standardized, often incomplete, and less easily marketed. Most automated commercial product catalogs are limited to specialized market niches for which needs have been demonstrated. For the most part, they target the computer and electronic industries because those industries are more standardized and the demand for information is great.

Automated catalogs of commercial products vary considerably in the number of products covered, ease of use, amount of product detail, and currency of information. The following subsections briefly describe a representative selection of current automated catalogs. None of those systems is a comprehensive automated parts catalog. Some are technically sophisticated but cover limited classes of products; others are included because they could be expanded to produce a viable system.

DesignLine

DesignLine is an on-line database covering semiconductors and microcircuits. It includes technical information, performance parameters, test results, and circuit diagrams for more than 450,000 parts. It also identifies semiconductors and microcircuits that meet military specifications. It is versatile and easy-to-use and provides comprehensive coverage of its subject material. Its only drawback is that it is currently limited to one class of products. *DesignLine* is discussed in detail in the appendix.

Information Handling Services (IHS)

IHS provides access to a variety of technical information including (1) military, Federal, and industry standards and specifications; (2) product information for over 27,000 industrial vendors; (3) information on material safety; and (4) technical articles and publications. It provides extensive indexes for the information either on line or on CD. The indexes provide references to the data that are contained on microfilm or microfiche. *IHS* will eventually automate all its data, which will provide comprehensive coverage of commercial industrial products.

Thomas Register

The Thomas Publishing Co. has three automated products based on its publications. All three allow searching by manufacturers' names and addresses and product names. *Thomas Register Online* corresponds to the main part of the Thomas Register of American Manufacturers and provides names, addresses, and product listings for about 138,000 U.S. companies that supply 50,000 classes of products under about 110,000 brand names.

Thomas New Industrial Products provides information on new U.S. and foreign products gathered from *Industrial Equipment News*. Each record has a brief description of the new product along with the name and address of the manufacturer.

The *Thomas Regional Industrial Suppliers* database is a directory of local manufacturers, distributors, manufacturers' representatives, and service companies in the eastern and central United States. The information comes from the 14 regional purchasing guides published by a subsidiary of Thomas Publishing Co. About 325,000 companies with more than 3,500 product classes are included in the file.

The original hard-copy Thomas Register includes several volumes of company catalogs that consist of pages reproduced from manufacturers' catalogs. Because of space limitations, only a small number of manufacturers have catalog pages reproduced and they are limited to a few pages apiece. Those pages may include technical specifications of the products but more often provide only general descriptions. The on-line databases do not include catalog data. The *Thomas Register Online* can be searched only by generic product names; the *Thomas New Industrial Products* includes more technical data but not a complete specification of the product.

Microcomputer Software and Hardware Guide

This *Guide* is available on line and contains ordering information, technical specifications, and a brief description of virtually every available software program, microcomputer hardware, and available peripheral equipment. The entries provide some technical detail such as compatible hardware, operating systems, languages, and manufacturer or distributor. Peripheral equipment covered includes expansion boards, disk drives, input devices, modems, monitors, printers, and tape drives.

Procurement Automated Source System (PASS)

PASS is an automated directory of approximately 150,000 small businesses that is maintained by the U.S. Small Business Administration. It provides the names and addresses of companies, the Standard Industrial Classification (SIC) of their products, the Federal Supply Classification, and ownership information. A company may be listed under multiple SICs and Federal Supply Classifications if it manufactures multiple products. PASS focuses on small businesses only and does not include technical descriptions of the companies' products.

Fast Finder

Fast Finder is an automated search and selling system for distributors of commercial and industrial fasteners. The database was set up as a means for distributors to locate or sell surplus inventory, and it currently includes more than 200,000 line items. *Fast Finder* also lists manufacturers, importers, and master distributors by product. Subscriptions to *Fast Finder* are restricted to members of the National Industrial Distributors Association and the Southern Industrial Distributors Association.

The system has been available since 1986 and is already expanding into additional product lines. Current efforts are directed toward mill and industrial supply products such as cutting tools, abrasives, taps and dies, mill ends, grease and pipe fittings, and drill bits. It plans to add hydraulic equipment, electronic components, and plumbing supplies in the future.

SPEC2000

The Air Transport Association maintains an automated information system called *SPEC2000*. That system grew out of the airline industry's efforts to standardize the exchange of information between airlines and suppliers. It allows suppliers to list parts and components of aircraft, aircraft engines, and supporting equipment for sale and purchasers to locate those items.

SPEC2000 has two parts. The first is the procurement file that lists part numbers, prices, and leadtime data, and the second is an automated ordering system that allows users to place orders through the system. Any suppliers or purchasers of aircraft equipment can subscribe to the system.

FUTURE PLANS

The technology associated with data storage and retrieval has been changing rapidly, as has the field of automated catalogs. We contacted the publishers of two large commercial electronics equipment catalogs. The *Electronics Engineering Master Catalog*, published by the Hearst Corp., has technical data on 4,000 products produced by 5,000 manufacturers. The publisher plans to automate the system eventually but not in the near term. It currently provides an inventory system on floppy disks that covers the products in the guide. McGraw-Hill publishes the

Electronic Buyers' Guide that also covers 4,000 products and 5,000 manufacturers, and it has no plans to automate.

Burg Communication, Inc. is currently developing the Electronics Defense Guide (EDG). Initially, it will be a manual database, but an automated version is planned. EDG will cover all defense mission-critical electronic items, including general-purpose computer equipment, communications equipment, and such special-purpose equipment as radar, sonar, navigation, and weapons control equipment. It will provide information on companies and their product listings and will include procurement charts that link products to the environment in which they operate (e.g., whether they are ruggedized or meet MILSPECS) and to the platforms on which they can be used (e.g., space, fixed-wing aircraft, sea-surface). All data will be obtained from detailed questionnaires completed by the participating companies.

INDUSTRY ATTITUDES

In our survey of automated catalog systems, we talked to several trade associations and companies that might use such systems or might participate in their development. The trade associations represented the aircraft, electronics, manufacturing, and wholesale distribution industries. Our discussions helped us to identify some of the systems mentioned above and we found a great deal of interest in automating catalog data.

One firm that we contacted manufactures and/or distributes about 50,000 standard components for aerospace, electronics, and computers. It has an internal automated system to keep track of the components it sells, but the system is not accessible by customers. That company was enthusiastic about the idea of having their catalog in an automated catalog system that would be available to DoD and private-sector subscribers.

POTENTIAL PROBLEMS

Development of an automated catalog system encompassing a large number of industries that manufacture different types of products would present some technical problems. Gathering commercial data in a standard format would be more difficult than using the FSC since the FSC data come from one source and a commercial products database would be a combination of data from many manufacturers and wholesalers. The Federal Cataloging System provides a

standard nomenclature for item descriptions, while private-sector manufacturers' item descriptions and numbering is not uniform. Not all manufacturers have automated their catalog data, and those who have do not conform to a standard format. The volume of data in an automated catalog of commercial products presents another problem. The FSC databases cover 14 million items, whereas a comprehensive commercial products database would be substantially larger because it would include manufacturers not currently selling to DoD and products that DoD is not currently buying. Providing efficient indexing and quick access to the data is not a trivial problem.

CHAPTER 3

FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

FINDINGS AND CONCLUSIONS

Recent advances in computer technology have stimulated efforts to automate parts catalogs. Several such systems now provide a partial solution to DoD's need to identify existing military and commercial off-the-shelf products. The most comprehensive systems are those based on the FSC. They provide user-friendly access to items now in the FSC and can be linked to additional commercial databases and Service-specific databases. The FSC-based systems are sophisticated and their capabilities are continually updated and expanded. They are an excellent tool for identifying available parts for existing DoD systems or items for new systems under design. Available catalogs covering commercial parts and components, e.g., microchips and computer hardware and software, vary greatly in their capabilities. Some use extremely sophisticated computer technology and some are not automated. All cover only one industry or group of products.

FSC-based automated catalogs adequately cover items in the DoD inventory, but no comparable automated catalog is available for a large portion of commercial products. Development of large, complex databases such as those that would be needed for commercial items is possible with today's computer technology. CDs are emerging as a way to store and distribute very large databases to many users, and software now being developed can index and organize them.

Since existing commercial products systems are too limited to meet DoD's needs, DoD must act to stimulate the development of systems that meet its needs.

RECOMMENDATIONS

DoD is in the position to play a leading role in encouraging development of automated parts catalog databases for commercial products. We recommend a two-part approach. First, the Deputy Assistant Secretary of Defense (Production Support) should publicize the need for such systems in as many different ways as possible. We have prepared a pamphlet, titled "Automated Catalogs Can Promote

Use of Off-the-Shelf Items," for release by the Director of Standardization and Acquisition Support. The pamphlet briefly describes the FSC systems and discusses the need for an automated catalog for commercial products. We encourage that the pamphlet be distributed to as wide an audience as possible.

A related way of publicizing this need is through speaking engagements and conferences. The standardization community holds a number of conferences throughout the year, and those conferences provide excellent opportunities to discuss the concept of an automated catalog for commercial parts and its possible content and format. Involvement of the potential user community at the beginning will ensure better understanding of the particular needs of each of the users.

Another way in which DoD can encourage the development of an automated catalog system is to provide part of the developmental funding in exchange for royalty-free use of the system.² Exhibit 1 is a general statement of need that DoD could publish to solicit interest. Joint DoD-contractor funding would permit the firm developing the system to retain all data rights to the system but would permit DoD to use the system without payment of royalties. DoD would recapture its part of the development costs from savings on royalty payments.

The private sector has expressed interest in automated parts catalogs and has undertaken efforts that cover limited groups of products. In the long run, DoD would benefit from such systems with lower procurement costs, increased availability of parts, and shorter procurement leadtimes.

²The Federal Government is engaged in an ongoing effort to define the contractor's and Government's rights to technical data. This recommendation is in agreement with the proposed policy issued by the Office of Federal Procurement Policy that encourages licensing and royalty-free use agreements when technology or software can be commercialized.

SYSTEM DESCRIPTION

PURPOSE

To develop an automated catalog database system.

The DoD seeks sources to share in the development of an automated catalog database system for commercial items that could be used to meet military requirements. The system should cover the complete array of products purchased by the Government and should include all feasible manufacturers of the items. The system should provide the following capabilities:

1. Identify commercially available items meeting specific technical characteristics or individual Government or non-Government specifications and standards.
2. Identify manufacturers of items listed in 1.
3. Cross-reference manufacturers' part numbers based on technical characteristics.
4. Identify those items meeting military specifications.
5. Allow searches on the basis of manufacturer's name, part number, technical characteristics, and other relevant variables.
6. Allow regular and timely updating of the information in the database.

The system may be available on line or PC-based. The system should take advantage of state-of-the-art technology so as to maximize efficiency and minimize waiting time. The system may be either menu-driven or command-driven but must be easy to learn and use.

Ownership of the system will reside with the contractor, and the contractor has unlimited rights to sell the system outside DoD. The contractor will give DoD a royalty-free license to the system for a period of time to be negotiated.

EXHIBIT 1. SYSTEM DESCRIPTION

GLOSSARY

ANSI	=	American National Standards Institute
APL	=	Approved Parts List
ASSIST	=	Automated Specifications and Standards Information Systems
CAGE	=	Contractor and Government Entity
CD	=	compact disk
CRS	=	Construction Regulations Service
DIDS	=	Defense Integrated Data Service
DoDISS	=	Department of Defense Index of Specifications and Standards
DSS	=	Defense Specifications Service
FAR	=	Federal Acquisition Regulation
FIIG	=	Federal Item Identification Guides
FSC	=	Federal Supply Catalog
FSCM	=	Federal Supply Code for Manufacturers
IHS	=	Information Handling Services
ILS	=	Inventory Locator Service
INC	=	item name code
ISS	=	Industry Standards Service
ITI	=	Innovative Technology Incorporated
MCRL	=	Master Cross-Reference List
MIAPL	=	Master Index of Allowable Parts List
MILSPEC	=	military specification
MILSTD	=	military standard
ML-C	=	Master List - Consolidated

MRIL	=	Master Repairable Items List
MUFFIN	=	Multi-Use File For Interagency News
NSN	=	national stock number
NTIS	=	National Technical Information Service
SIC	=	Standard Industrial Classification
SPCC	=	Ships Parts Control Center
TLRN	=	Technical Logistics Reference Network
VSS	=	Vendor Selector Service

APPENDIX

CAPABILITIES OF SELECTED AUTOMATED CATALOG SYSTEMS

INTRODUCTION

This appendix describes the five major automated catalog systems currently available. The first four systems cover items in the Federal Supply Catalog (FSC), while the last covers commercial and military microcircuits and semiconductors. The five systems are: Technical Logistics Reference Network (TLRN), Haystack, Inventory Locator Service (ILS), ILOGS, and DesignLine. Each review contains a description of current capabilities, future capabilities in the planning stage, how to subscribe, and a discussion of the system's advantages and disadvantages. The systems all offer on-line access and a compact disk (CD) version. On-line access can be accomplished in a number of ways. The vendors provide the software necessary to use their system, and in many cases will supply the necessary hardware for either lease or purchase.

The information in this appendix is the best available at the time of publication. Although every effort was made to verify the information, we do not guarantee the accuracy. The systems can change rapidly, and you should contact the vendor to verify that the system's characteristics meet your requirements. The order of presentation of the five systems is random and does not imply a ranking or an evaluation.

TECHNICAL LOGISTICS REFERENCE NETWORK
Innovative Technology Incorporated
7927 Jones Branch Drive
McLean, VA 22102

Overview

TLRN is an automated, on-line, database management system containing FSC supply and logistics information and supporting technical data. It offers access to various other reference databases, allows users to identify FSC items meeting certain standards or specifications, and permits users to order copies of any current

standard or specification. TLRN plans eventually to allow generic comparison among all types of standards and specifications.

Current System Capabilities

TLRN uses microcomputers to link subscribers to a host computer system. It obtains data from the Defense Integrated Data Service (DIDS) through the National Technical Information Service (NTIS). The database is updated quarterly, and contains the full FSC complement of about 6 million national stock numbers (NSNs), corresponding to 14 million manufacturer part numbers.

TLRN is menu-driven; the user is prompted to make menu selections or identify characteristic codes from those contained in the system. Given the large number of potential codes for each record, menus are desirable for the beginner or infrequent user. However, the system provides no "shortcut" or command language for frequent users who know in advance which codes they wish to enter.

Microcomputer software is provided to subscribers for two purposes: (1) to act as a local processing system that performs preliminary work on user requests, and (2) to allow local manipulation of data downloaded from the host computer. Required equipment is described below.

TLRN searching is simple and sequential, with one characteristic queried at a time. The result of each search becomes the basis for the next; compound queries are therefore developed as the product of simple queries. TLRN terms this feature "Query by Result." A user may return to the result of a previous search and use it as the basis to proceed down a different path. Search results may be displayed as groups of single-line summaries or as a series of detailed individual records.

The user may search the database on any of these characteristics:

- NSN
- Allowance Parts List (APL)
- Part number/other reference number
- Item name/description
- FSC category
- Specification/standard references

- Federal Supply Code for Manufacturers (Contractor and Government Entity) [FSCM(CAGE)] code
- Company name
- Federal Item Identification Guide (FIIG) codes
- Technical characteristics.

TLRN searches are tolerant of incomplete or incorrect information. A search will ignore punctuation in NSNs or specifications, such as slashes or dashes. TLRN searches are root searches; that is, they identify records in which a selected characteristic begins with the specified data. For example, a search for "123456" will find as well "12345678," "123456ABC," and "12345/6-A78."

TLRN will search for records matching any specification or standard in the DoD Index of Specifications and Standards (DoDISS), and will list items having that specification or standard as a primary reference number. One drawback is that the original DoD item record may not necessarily contain the reference to a specification or standard.

As a means to provide more complete information to subscribers, TLRN allows access to the following other commercial database systems:

1. Information Handling Services (IHS) TECH DATA – 17 different databases indexing all commercial, Federal, and military specifications and standards, and commercial vendor catalogs and products; also allows the user to order hard copies of referenced documents
2. Federal Procurement Data – information on individual Federal procurements of \$10,000 or more (\$25,000 or more from DoD)
3. *Commerce Business Daily On-Line* – information on requests for proposals, contract awards, international specifications, and general announcements
4. Dun and Bradstreet business information data.

Each of these database systems appears as a discrete system; their information cannot be linked with that in TLRN.

TLRN has a CD product that covers selected portions of the TLRN database. It includes the most frequently used management list and vendor information and allows users to perform simple lookup functions quickly without incurring the cost of

time attendant to on-line searches. The CD product also allows the user to produce batch files of inquiries for subsequent transmission to the on-line TLRN system.

The TLRN user interface is a well-tailored, versatile approach that allows the user to make almost random queries about any part of the TLRN database from any point in the system. For example, a user who is reviewing information related to a part number and desires to look up a CAGE code that has been displayed may do so immediately without writing down or otherwise remembering the CAGE code for a future search. The user may back out of an unsatisfactory query response and proceed from a previous response, rather than returning to the beginning and starting over again.

Future/Planned System Capabilities

Innovative Technology Incorporated (ITI), is developing a method to compare Federal, military, and non-Government standards and specifications on a generic basis. That capability will allow users to determine which non-Government standards and specifications are functionally equivalent to Government documents. The user will also be allowed to search for standards and specifications covering specified characteristics. This latter capability will increase the potential for identifying commercial items with potential military use.

Along with improved access to standards and specifications, ITI is working to develop a specification tree capability for military specifications (MILSPECs) and military standards (MILSTDs). That capability will allow the user to trace a dependency path from a primary specification or standard through all subordinate specifications and standards.

ITI plans to improve the TLRN search capability to allow quick compound searches, which will reduce user time on the host system and allow more complex and meaningful data queries.

ITI is working on a pilot demonstration to include a variety of data sources containing supplementary information on FSC items. Those data include the Army Master Data File, procurement history, end-item applications, inventory control databases, and the basic FSC data. The approach taken by ITI is to retrieve all data applicable to an item through a "universal query," making the data search invisible to the user, who need then only select the data required. Also included in this

concept are critical item alerts, which show all parts, subsystems, and systems affected by a critical item, the procurement history of that item, the organization responsible for reprourement, and potential substitute items.

ITI also plans to make technical drawing references available in future enhancement. FIIG definitions often have drawings that provide a generalized picture of the item. TLRN will have the capability to retrieve these drawings and provide them to subscribers.

Subscribing to TLRN

Anyone is eligible to subscribe to TLRN. It is available through FEDLINK or under Government subscription rates. Subscriptions are available with hourly rates or on a monthly unlimited use basis. Volume discounts are available depending on the total number of users at a given location. Interested users should contact ITI for additional subscription details and pricing information at 703-734-3000.

Advantages/Disadvantages

TLRN has many advantages; it contains a substantial amount of readily accessible technical information and has been well programmed to handle that information. It responds quickly and offers quick access to other databases that support and augment its information. The system is easy to use, and its operation is relatively simple to understand. TLRN services, including the potential for connecting to other on-line systems, provide considerable power to subscribers.

HAYSTACK
Ziff-Davis Technical Information Company
80 Blanchard Rd.
Burlington, MA 01803

Overview

Haystack is an on-line database management system containing FSC information purchased from the Government and additional information about vendors, standards and specifications, and construction regulations and standards. Future improvements will allow access to commercial database systems, further augmenting Haystack information.

Current System Capabilities

Haystack is an automated, on-line system using microcomputers to link subscribers to a host computer system. Links are made through commercial telecommunications networks or through Ziff-Davis' private telecommunications network. Haystack uses data obtained from the DIDS provided by the NTIS. The database is updated quarterly and contains the full FSC complement of about 6 million NSNs, corresponding to 14 million manufacturer part numbers.

Additionally, Haystack obtains a variety of data files from the Military Services, including the Army Master Data File, the Air Force Data File, and the Navy APL, Master Index of Allowable Parts List (MIAPL), Ships Parts Control Center (SPCC) Cross-Reference File, and Master Repairable Item List (MRIL).

Ziff-Davis provides telecommunications software for use with Haystack, allowing users to connect with the system more easily. Most commonly used microcomputer telecommunication packages will also meet this need.

The Haystack database is divided into five sections: Parts, Defense Specifications Service (DSS), Industry Standards Service (ISS), Construction Regulations Service (CRS), and Vendor Selector Service (VSS). The various portions of the database contain different information, and the user may search on specific characteristics as follows:

- *Parts:*

The following information is available on individual FSC items: stock and part numbers; vendor CAGE code, name, and address; item description; other relevant descriptions; applicable specifications and standards; item technical information; item stockage history for each Federal agency supply system; and item usage data.

Files may be searched on NSN, part number, vendor CAGE code, vendor name, or key word in item description.

- *DSS:*

This section contains information on Government specifications, standards, drawings, bulletins, and other standardization documents, including: document number, document title, FSC Class, document size, and document revision history.

It may be searched on document number, FSC class, or key word in document title.

- *ISS:*

This section contains information on non-Government specifications and standards, including: document number, document title, FSC class (if applicable), document size, DoD-approved or American National Standards Institute (ANSI)-approved status, and document revision history.

It may be searched on document number, issuing society, DoD- or ANSI-approved status, or key word in document title.

- *CRS:*

This section contains information on the following commercial construction regulations and standards: document number, document title, document size, and document revision history.

It may be searched on document number, FSC class, or key word in document title.

- *VSS:*

This section contains information on vendors of FSC items, including: CAGE code, name and address, Standard Industrial Classification (SIC) code, product types, and catalog microfilm and microfiche index references.

It may be searched on CAGE code, vendor name, or key word in vendor product type and catalog listing.

Haystack offers the user three ways of searching the database:

- *Quick:* The user can enter a series of part or stock numbers and retrieve related sets of records. This feature is most useful for cross-referencing functions since it allows the user to process requests in batches. It is not an extremely versatile or flexible approach to the Haystack data.
- *Screen:* This feature provides a menu-driven approach to searching Haystack's data. It allows the user to enter up to three characteristics for searching. The system provides all possible choices for the user, who selects appropriate entries. This approach is good for the infrequent user who does not need to remember Haystack commands, but it is bulky, cumbersome, and very time-consuming.
- *Command:* This method is the most versatile and powerful approach to searching Haystack's data. The command language allows the user to specify complex queries with a single line of commands. It is quick and a

good feature for frequent users. Memorizing the common commands and characteristics is desirable for using this feature.

Haystack is flexible in that it allows both compound and simple searches. The user can, for example, search for all parts having the key word "SMOKE" or can refine a request by searching for parts having the words "SMOKE" and "FILTER." Furthermore, a user may perform a search and then continue to refine the search through further choices. A negative aspect to this procedure is that the user may not return to previous search results; once a result is refined, all items not included in the new search are lost.

Haystack searches are tolerant of incomplete or incorrect information. A search will ignore punctuation such as slashes or dashes. Searches can be for specific matches, or they can be root searches in which Haystack looks for items beginning with a specific group of characters. For example, a root search for "123456" will find as well "12345678," "123456ABC," and "12345/6-A78."

Another Haystack feature is the quick CAGE code locator. This fast, menu-driven function allows the user to enter either a CAGE code or company name and then provides all cross-references to it. Additionally, in the COMMAND mode, the user may quickly request company information for a CAGE code.

Haystack users may search on technical characteristics by specifying an item name or a FIIG item name code (INC). Haystack then lists the features included by the FIIG for that INC. The user selects one or more characteristics on which to search, and Haystack lists all records meeting the user's criteria. A negative aspect to the searching function is the wide variability in technical characteristic descriptions. Because the characteristics are compiled from data entered in the DIDS and no attempts have been made to remove redundancies or inaccuracies, the technical search is often slowed or its accuracy diminished by too many possible choices. This flaw is the result of limitations in the DIDS, the underlying data source.

Haystack includes available procurement information on centrally managed items. This information, obtained from the Military Services, includes contract numbers, placement dates, vendor codes, and quantities and unit prices and spans a 5- to 7-year period.

Haystack's Service-specific files contain information grouping components by family or application, information on interchangeability and substitutability, and

notes on special-handling features. Those files also enable users to examine cross-Service applications of individual parts, identify all discrete components in a piece of equipment, or identify the systems using an individual part. Data in these files are retrieved in the same manner as the FSC information.

Ziff-Davis also markets a CD version of Haystack that contains the Master Cross-Reference List (MCRL) and Master List – Consolidated (ML – C) information, as well as the technical characteristics information. It allows the user the same search characteristics as the on-line version of Haystack, with the exception of the technical search. Technical characteristics are available from the CD version only as the result of other types of searches.

Future/Planned System Capabilities

To increase Haystack capabilities, Ziff-Davis plans to include reliability data from the Defense Logistics Agency. These data include information on mean time to failure, mean time to repair, and mean time to overhaul. Users can analyze life-cycle costs for parts, equipment, or systems with these data.

Finally, Haystack will provide access to the following information systems:

- General Services Administration (GSA) Multi-Use File for Interagency News (MUFFIN) data
- *Commerce Business Daily* On-Line
- Federal Acquisition Regulation (FAR) On-Line
- Logistics Support Analysis On-Line
- Hazardous materials database
- Automated Specifications and Standards Information Systems (ASSIST).

Subscribing to Haystack

Anyone is eligible to subscribe to Haystack. It is available through FEDLINK or under a Government subscription rate. Subscriptions are available with hourly rates or on a monthly, unlimited use basis. Quantity discounts are available depending on the total number of users at a given location. Dedicated lines to the Haystack computers are also available. Interested users should contact Ziff-Davis

for additional subscription details and pricing information at 703-979-0450 or 800-622-5533.

Advantages/Disadvantages

Haystack is a versatile, flexible system that offers a great deal of capability both to the novice user and to the expert, or frequent, user. The data are complete and well indexed. Searches are quick and results are relatively clear and meaningful. Technical information is generally comprehensive (this is a function of Government cataloging). In general, a great deal of information is available to the user.

Haystack's disadvantages primarily involve the user interface. While much effort has gone into making the system as technically advanced as possible, not as much has been done to make the user interface clear and unambiguous. Error messages are not always clear, and users must continually remember their entire train of thought for the current inquiry, with no guidance on their current status. In general, the poor user interface is a minor problem; novices will be more disconcerted than experienced users since frequent use can overcome these problems. Ziff-Davis has identified improvement to the Haystack user interface as a top-priority action and plans to introduce revised software in the near future.

INVENTORY LOCATOR SERVICE, INC.
P.O. Box 18767
Memphis, TN 38181-0767

Overview

Inventory Locator Service (ILS) is a database management system containing FSC supply and logistics information and supporting technical data. ILS focuses on the location of aircraft parts and equipment in vendor inventories.

Current System Capabilities

ILS is an automated system that uses microcomputers or terminals to link subscribers to a host computer system. It obtains FSC data from the DIDS through NTIS. The database is updated quarterly and contains the full FSC complement of about 6 million NSNs, corresponding to 14 million manufacturer part numbers.

ILS is menu-driven, and the user is prompted to make menu selections. The user can inquire on part numbers, NSNs, Federal Supply Classifications, overhaul

capability, broadcast or inquire quotes, and usage reports. Additionally, vendors who subscribe to ILS may advertise available inventory and respond to requests for quotes broadcast through the system.

From the ILS menus, the user creates a message file that is then transmitted to the host computer. The host searches for matching information and then sends a response message back to the user. At no time is the user actually on line with the ILS host computer. The user may review the ILS response without a deadline since it is stored by the terminal or microcomputer.

In response to a part number or Federal Supply Class inquiry, ILS provides some or all of the following information: MCRL information, procurement history of last three DoD purchases, ML-C information, MRIL information, next higher assembly information, MIAPL information, and technical characteristics. The user is only allowed to search by part number, NSN, or Federal Supply Classification, however. Each set of information must be purchased separately from ILS. The user must subscribe to the MCRL information base to be eligible to purchase any of the others.

ILS searches are tolerant of incomplete or incorrect information. A search will ignore punctuation such as slashes or dashes. Searches can be for specific matches, or they can be root searches in which ILS looks for items beginning with a specific group of characters. For example, a root search for "123456" will find as well "12345678," "123456ABC," and "12345/6-A78."

ILS acts as a broker for a CD product called ILOGS. ILOGS provides the same basic information as ILS but allows the user to search on other information in addition to the basic ILS part number/NSN/FSC inquiry capability. (ILOGS is described on page A-14.)

Future/Planned System Capabilities

Since ILS's primary focus is inventory location and description, the main direction of future development is the location and inclusion of additional inventory sources. ILS is also working to improve the overall capabilities of its cataloging system. More complete procurement history and technical information is planned, as are additional data files, such as the Service databases.

Subscribing to ILS

Anyone is eligible to subscribe to ILS. It is available on the GSA schedule, through FEDLINK, or under Government subscription rates. Subscriptions are available with hourly rates or on a monthly, unlimited use basis. Volume discounts are available depending on the total number of users at a given location. Interested users should contact ITI for additional subscription details and pricing information at 901-794-4784.

Advantages/Disadvantages

ILS provides a unique approach to FSC catalog management. It is primarily a logistics tool, allowing the user to locate available inventory sources. It provides unique part-specific information on part usage and current business transactions. It also contains most of the information available through other FSC catalog systems.

The major disadvantage of ILS is its limited search capability. The system is mainly useful as a look-up or cross-reference table for part numbers and NSNs because the user is restricted to searching by part number or NSN.

ILOGS

available through:

Inventory Locator Service, Inc.

P.O. Box 18767

Memphis, TN 38181-0767

Overview

ILOGS is a CD database management system containing FSC supply and logistics information and supporting technical data. It allows users unlimited, portable access to commonly used FSC data.

Current System Capabilities

ILOGS is an automated, CD system that runs on personal computers. It uses data obtained from the DIDS through NTIS. The database is updated quarterly, and contains the full FSC complement of about 6 million NSNs, corresponding to 14 million manufacturer part numbers.

In addition to the FSC data, ILOGS has the MRIL, next highest assembly information, and the MIAPL. Additionally, ILOGS contains procurement history

files from many DoD facilities and the available technical characteristics for many parts.

ILOGS is a menu-driven system, requiring only that the user select choices and refine those selections. The ILOGS program is extremely flexible, allowing the user to make virtually random queries about any aspect of ILOGS data, providing the requisite response, and identifying an inquiry trail.

The user may search ILOGS data on any of the following characteristics: NSN, manufacturer's part number, item name, keyword, drawing number, or MILSPEC or MILSTD number. In response to a query, the user may view any or all of the following information: MCRL, ML-C, procurement history, MRIL, technical characteristics, next highest assembly, and MIAPL. The information is cross-referenced so that the user may easily get more information on any portion of a response. For example, if a procurement history summary includes a CAGE code for a vendor, the user may highlight that code and view all available information about that vendor without returning to a main menu.

ILOGS is updated quarterly and new CDs are sent to all subscribers. Users are required to return the old CDs to ILS.

Subscribing to ILOGS

ILOGS is available through ILS on a yearly subscription basis or through the GSA schedule. Interested users should contact ILS for detailed subscription information and pricing at 901-794-4784.

Advantages/Disadvantages

ILOGS is a tremendously capable system, given its hardware and data storage restrictions. It allows versatile searching and provides the user easy access to all its data. The CD technology makes it relatively portable, and user response time is good. It has none of the disadvantages associated with dial-up systems, such as host computer malfunctions or heavy user load and poor response.

The obvious disadvantage is that ILOGS is limited to the storage available on the CD media, and if more information is included in the system, more CDs are required to store that information. Additionally, the system performance is bounded by the capability of the microcomputer on which it runs. Generally, that limitation

means that while ILOGS can store and retrieve increasingly larger amounts of information, depending on the number of CDs used, its search capability will be somewhat restricted by microcomputer hardware and software capabilities. Overall, however, if the user's information needs are satisfied by the data contained in ILOGS, it is a flexible, cost-effective system.

DESIGNLINE

**Cahners Technical Information Services
A Division of Reed Publishing USA
20300 Stevens Creek Boulevard, Suite 380
Cupertino, CA 95014**

Overview

DesignLine is a database management system containing information about integrated circuits and discrete semiconductors. It allows users to identify pin-for-pin replacement parts, component specifications, schematic diagrams, and references to published sources of information about specific parts.

Current System Capabilities

DesignLine is available, on line or on CD. DesignLine obtains data from semiconductor manufacturers and catalogs the information to allow the user to identify all relevant technical characteristics. DesignLine contains information on more than half a million parts.

DesignLine is menu-driven, with the user being prompted to make menu selections. All menus appear as windows on the screen. The user does not have to learn commands or memorize a language to use DesignLine effectively. While the DesignLine menu approach is simple and effective, it is somewhat slow to respond to user choices, and no shortcut is available for experienced users.

DesignLine searches follow a simple basic pattern. The user enters a generic semiconductor designation (e.g., "8088"). DesignLine displays all known manufacturers of chips having that basic generic designation. Once generic manufacturers are identified, the user selects a specific manufacturer and is shown all complete part numbers matching the generic description. The user then selects one part number and DesignLine displays the information about that part. The user

may ask for technical characteristics, published references, or schematic diagrams (if the user's equipment is adequately equipped for graphic display).

Additionally, DesignLine allows the user to identify potential substitutes for a specific part and display the characteristics for that part. The user may also perform a keyword search on a generic part, searching for related parts with specific technical characteristics. DesignLine also allows the user to search for all generic parts meeting certain characteristics.

DesignLine users may request hard copies of reports and of schematic diagrams if their systems do not support graphic reproduction.

Subscribing to DesignLine

DesignLine subscriptions are available on an hourly basis or a monthly unlimited use basis. Interested users should contact DesignLine for subscription details and pricing information at the above address or 408-255-4900.

Advantages/Disadvantages

DesignLine is a versatile, attractive, easy-to-use system that comprehensively covers its subject material. It is useful for design and component engineers, procurement specialists, and manufacturing and production. It has no major drawbacks other than its limitations to semiconductors and integrated circuits. For information on those types of equipment, it is ideal.

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19. Abstract (Continued)

Since DoD is the major potential user and beneficiary of automated catalogs, it is in its interest to promote their development. We recommend that the Deputy Assistant Secretary of Defense (Production Support) take the following actions:

- Publicize the availability of FSC-based catalog systems and the need for automated catalogs covering commercial items.
 - ▶ Distribute widely a pamphlet describing existing automated catalogs and identifying the need for additional ones featuring commercial products.
 - ▶ Participate in conferences of the potential user and developer communities to demonstrate the need and explore the market for such catalogs.
- Participate in funding the development of an automated catalog for commercial products by awarding a competitive contract in exchange for a period of royalty-free use.

By making buyers and designers aware of automated FSC-based catalogs, DoD can increase their use. By making software developers aware of the need for automated catalogs of commercial products, DoD can stimulate their development. Greater use of commercial products is anticipated and both DoD and the developers will be better off. Time and costs will be saved.

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